

ABSTRACT
SUMMARY OF THE INVENTION

In the present invention we describe a new method for the formation of a mucin-biomolecules complex, such as a mucin-DNA (deoxyribonucleic acid) complex and the application of such a complex for the transport of DNA, RNA (ribonucleic acid) and other biomolecules into cells.

Transfection is the introduction of a DNA molecule into a eukaryotic cell, usually followed by the expression of one or more genes in the newly introduced DNA. The mucin-DNA complex described in the present invention can be used to perform transfection of DNA, as well as, the introduction of RNA and other larger biomolecules into cells. Since effective transfection, especially in *in vivo* systems is still limited by the methods currently available, the mucin-DNA complex, as described in the present invention, presents a novel and significantly improved method for performing transfection and ensuring the effective transmission of DNA into cells and the expression of genes in transfected DNA.

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